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J. Lamb / 1034A

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Signature

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CARBIDE AND CARBON CHEMICALS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

UCC

POST OFFICE BOX P
OAK RIDGE, TENN.

August 18, 1954

REPORT NO.
KZ 7269

United States Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Mr. S. R. Sapirie, Manager, Oak Ridge Operations

Subject: PROPOSED MELTON HILL DAM ON THE CLINCH RIVER

Gentlemen:

In accordance with your request of July 27, 1954, we have surveyed the effect of the proposed Melton Hill Dam on the operations of the Y-12 and K-25 Plants and the Oak Ridge National Laboratory. Our following comments are supplementary to the seven items listed in your letter.

Operations at Y-12 would not be affected.

Operations at K-25 would not be affected provided there is no interruption to the continuous flow in the Clinch River feeding the backwater pool from which the K-25 Power House secures its cooling water supply. Records from the Scarborough gauging station, above the backwater pool elevation, show the following minimum flow rates past that station during the last five years.

January 1, 1949	212 cu. ft. per sec.
September 16, 1950	298 cu. ft. per sec.
July 3, 1951	267 cu. ft. per sec.
June 16, 1952	302 cu. ft. per sec.
May 13, 1953	405 cu. ft. per sec.

There are periods when the Watts Bar pool is being raised that a reversal of flow occurs past the Power House intake. This results in a recirculation of cooling water with a rise in surface temperature. However, the ability of the power house to use selectively the cooler water coming down the Clinch River represents an economic advantage that should not be lost. The watershed area between Norris Dam and K-25 provides a flow even during times of no-flow thru Norris Dam that could be cut off entirely by unregulated operation of the proposed dam.

The Laboratory is also interested in assurance of no interruption to the continuous flow in the Clinch River in order to have proper dilution of radioactive liquid wastes entering from the mouth of White Oak Creek. Measurements of river flow at the Scarborough gauging station have been used to calculate the dilution. Since this gauging station will be inundated some other arrangement will be needed for this purpose.

Carbide and Carbon Chemicals Company, Operating Contractor for the U.S. Atomic Energy Commission.

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It is quite possible that the new proposed dam and reservoir may be a substantial asset to the Laboratory. In the event of any future construction of reactors larger than the HRT, the backed up water will substantially ease the problem of heat disposal. The cost of providing cooling water would be appreciably reduced, although we are not in a position to estimate the exact financial advantage since the amount of heat to be rejected and its temperature are presently unknown. We have under consideration a site for such a project located 35° 55' latitude and 84° 17' longitude on an inlet opposite the Gallahar bend of the river. Raising the water elevation would make this a superior site. The question might arise as to the public safety of this location because of its increased accessibility to the public. To meet this objection we would at that time recommend a log boom located across the mouth of the inlet. Appropriately posted, the boom should provide adequate warning to the public. Another independent advantage that we see in the proposed reservoir relates to the fact that such an installation would provide a large volume of water immediately available to provide dilution during an extreme emergency resulting from a large uncontrollable contaminated liquid waste disposal from the Laboratory.

As public navigation is expected on the proposed new reservoir, new problems may arise with regard to security access to adjoining areas. These areas are presently under the jurisdiction of the Atomic Energy Commission and would not directly affect Carbide security responsibilities. Consequently, we presume that any measures to cope with such new problems will be determined by the Atomic Energy Commission.

Very truly yours,

CARBIDE AND CARBON CHEMICALS COMPANY

Vice President

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